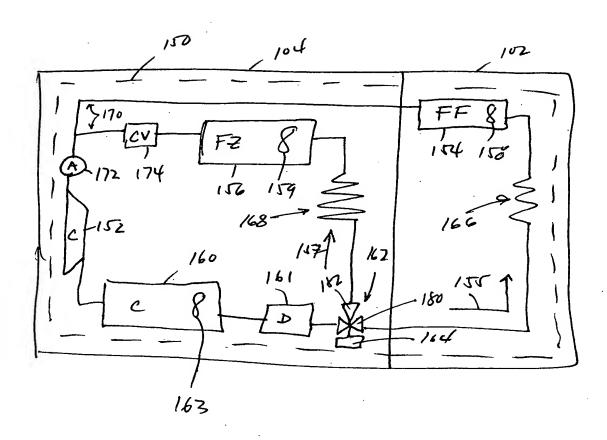


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FIG.





FISHE 2

TITLE: Methods and Apparatus for Controlling Refrigerators
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DOCKET: 90-HR. 25242
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200 210 Providing a three-way valve 220 Switching three-way valve from position A to position B 230 Activating fresh food evaporator fan for T₁ 240 Deactivating freezer evaporator fan for T2 250 Delivering refrigerant from compressor to Freezer Evaporator

FIGURE 3

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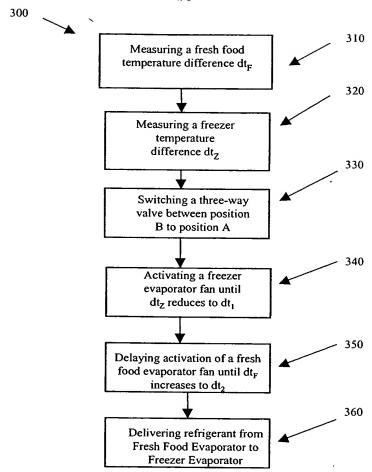


FIGURE 4

If Valve is in If Valve is in NOTE (1): 0					.	24 1	FZ Low Hysteresis	and Section 15	E7 Taract Tarac	(FZHIHyet) 18 S	FZ HIGH HYST 1				(rExample)	N T		i de la companya de l	Ť			FZ EXTREME 0 A		COMP M	-
A position FZFan is o B position FZFan run		• TI TI		FF Fan OFF	Valve A		<u> </u>	Valve NC	Comp/Cond NC	19	FF Fan OFF	Valve B	FZ Fan Low	Comp/Cond LOW	Area = Area5	Valve B FF Fan OFF	FZ Fan Med	Area = Area5 Comp/Cond Med	FF Fan OFF	Valve B	Area = Area5 Comp/Cond Hi	FF Fan Off	FZ Fan HI	COMP MED/ Cond - SuperHI	
If Valve is in A position, FZFan is off and FFFan runs attess in Low Speed If Valve is in B position FZFan runs attess in Low speed and FFFan is off NOTE (1): DAMPER OPENS, A FE FAN ON I OWAT BO STADT THEN VICEYO	FF.Low Hysteresis Freez		,	FF Fan OFF	Comp/Cond OFF FZ Fan. OFF Valve A		FF Fan OFF	Valve B	Area = Area 5 If (Comp/Cond On)		FF Fan OFF	Valve B	FZ Fan Low	Comp/Cond Low	Area = Area 5	Valve B FF Fan OFF	FZ Fan Med	Area = Area 5 Comp/Cond Med	FF Fan OFF	Valve B		valve o FF Fan Off	FZ Fan HI	COMP MED/ Cand - SuperHI	
If Valve is in C position FX and FF fans run atleast in Low speed			FF Target Temp	Valve A FF Fan Off	Comp/Cond Off FZ Fan OFF	26 AA Area - Area0	FF Fan NC	else Comp/Cond NC, Valve NC, FZ	If Area = Area2 Comp/Cond Low, Fz Fan Off	20 U Area 4	Area = Area3 FF Fan NC	else Comp/Cond Low, If Valve not A FZ-Fan Low	Valve C, Area = Area2	Comp/Cond Med, FZ Fan HI	14 O Area 3 If Area © Area1	If (Valve NOT. A) Fa Fan High Valve NC FF Fan NC	.if(Area Not Area3)Comp/Cond Med	8 I Area 2 If NOT from Area 1 Area = Area2	FF Fan NC	Valve NC	- 53	Valve NC FF.Fan NC	FZ Fan HI	COMP MED/ Cond - SuperHI	
If Valve is in A position, FZFen is off and FTFen runs atteast in Low Speed If Valve is in B position FZFen runs atteast in Low speed and FTFen is off NOTE 141, CAMPER OF SPEED THE STATE ASSESS IN LOW speed and FTFen is off	(FFHI (FE. HIGH HYST 1		FF FAN LOW	Comp/Cond LOW FZ Fan Off Valve A	27 AB Area • Area 6	Area = Area3 FAN LOW	Valve A		21 V Area 3	. Valve A, Area = Area3 FF Fan Low	eise Comp/Cond Low,Fz Fan Off		Comp/Cond Med, Fz Fan Hi	15 P Area 3 If Area = Area1	Valve C FF.Fan Low	. Area = Area2	9 J Area 2 If NOT, from Area 1 Comp/Cond Med,FZ Fan HI	FF FAN LOW	FZ Fan High Valve C	Area # Area1 Comp/Cond HI	1	FZ Fan Med	COMP MED/ Cand · SuperHI	
	(FFXHI (FEHIG HYST 2	-	FF FAN MED	Comp/Cond LOW FZ Fan Off		Area = Area2 FF FAN MED	Fz Fan Off Valve A	Comp/Cond Mad	22 W Ama 2	Area = Area2 FF FAN MED	Valve A	Fz Fan Off	Comp/Cond Med	16 Q Area 2 If NOT, from Area 1	Valve C FF FAN MED Area = Area2	FZ Fan High	10 K Area 2 If NOT from Area 1 Comp/Cond Med	FF FAN MED	FZ Fan High	4E Area 1 Area = Area1 Comp/Cond HI		FZ Fan Med	COMP MED/ Cond - SuperHi	
	(FFXXHI Hyst)	FF HIGH HYST 3		FF Fan High	Comp/Cond MED FZ Fan Off	29 AD	FF Fan High	FZ Fan Off Valve A		21 Y Acc. 1	FF FAN HIGH	Valve A	Fz Fan Off	Comp/Cond Med	17 R Area 1 Area = Area1	Valve A FF Fan High	FZ Fan Off	11 L Area 1 Area = Area1 Comp/Cond HIGH	FF Fan High	FZ Fan High	5F Area 1 Area = Area1 Comp/Cond Hi	Valve C FF Fan MED	FZ Fan Med	COMP MED/ Cond - SuperHI	

If Valve is in A position FZFan is off and FFFan runs atteast in Low Speed
If Valve is in B position FZFan is off and FFFan runs atteast in Low speed
If Valve is in B position FZFan runs atteast in Low speed and FFFan is off
NOTE (1): DAMERG OPENS & FF FAN ONL LOW AT SS START, THEN CHECKS FOR PROPER POSITION NEXT LOGIC CYCLE NOTE (5): ONF = obey no freeze limit (part of the configuration byte)
NOTE (2): FOR BPO & QUANTUM FZ Fan LOW = FZ Fan MEDIUM
NA
NOTE (3): If the FF temperature has not gotten colder by 0.15 F within 30 minutes of the damper opening, boost the FZ Fan to NOTE (7): See included worksheet in order to calculate the configuration byte)
NOTE (4): EFCSSO = evaporator fan on sealed system off (part of the configuration byte)

FFROILWQ = FFTHERMIST
FZROILWQ = FFTHERMIST
FZROILWQ = FZTHERMIST
FFLTAVG3 = Beta * FFLTAVG3 + (1 - Beta) * FFROILWQ * added by RMB 8/1
FFLTAVG3 = Beta * FFLTAVG3 + (1 - Beta) * FFZDAVQ * added by RMB 8/1
FFLTAVG3 = Beta * FFLTAVG2 + (1 - Beta) * FFLTAVG3 * added by RMB 8/1
FFLTAVG2 = Beta * FFLTAVG2 + (1 - Beta) * FFLTAVG3 * added by RMB 8/1
FFLTAVG3 = Beta * FFLTAVG3 + (1 - Beta) * FFLTAVG3 * moved by RMB 8/1
FFLTAVG4 = Beta * FFLTAVG4 + (1 - Beta) * FFLTAVG3 * moved by RMB 8/1/1
FFLTAVG4 = Beta * FFLTAVG4 + (1 - Beta) * FFLTAVG4 * moved by RMB 8/1/1 II (FFLTAVG-(TFFTARGET + FFOFF) > 1) Then
FERROR = FFERROR - 0.1

841 ELBHI (FFLTAVG - TFFTARGET - FFOFF > 0.2) Then

841 ELBHI (FFLTAVG - TFFTARGET - FFOFF < -1) Then

842 ELBHI (FFLTAVG - TFFTARGET - FFOFF < -1) Then

843 FFERROR = FFERROR + 0.1

844 FFERROR = FFERROR + 0.02

844 FFERROR = FFERROR + 0.02

End II If FFERROR > FFHIHyst+2 Then FFERROR = FFHIHyst+2 If FFERROR < FFLowHyst Then FFERROR = FFLowHyst

(FZLTAVG - TFRTARGET - FZOFF > 1) Then
FZERROR = FZERROR - 0,1
Eball (FZLTAVG - TFRTARGET - FZOFF > 0,2) Then
FZERROR = FZERROR - 0,02
Eball (FZLTAVG - TFRTARGET - FZOFF < -1) Then
FZERROR = FZERROR + 0,1
Eball (FZLTAVG - TFRTARGET - FZOFF < -0,2) Then
FZERROR = FZERROR + 0,02 If FZERROR > FZHiHyst Then FZERROR = FZHiHyst
If FZERROR < FZLowHyst Then FZERROR = FZLowHyst

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Switching three-way valve to position A

Switching three-way valve to position B

Switching three-way valve to position C

FIGURE 6